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CLAIMS FOR EXAMINATION

**ENGLISH TRANSLATION OF
INTERNATIONAL APPLICATION
CLAIMS AND ARTICLE 19
AMENDED CLAIMS
INCORPORATED**

PCT/JP2004/009503

CLAIMS

1. (Amended) A pattern comparison inspection method which captures an image of an inspection target pattern having a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch, and which detects a defect in said inspection target pattern by comparing image signals taken from positions located a first integral multiple of said repeat pitch away from each other within an inspection region defined inside said repeated pattern region, said method comprising:

10 a reference position selecting step for selecting from among positions on said inspection target pattern a reference position which is judged whether it should be contained in said inspection region;

15 an image comparing step for comparing an image signal at said reference position with an image signal at a position located a second integral multiple of said repeat pitch away from said reference position and a prescribed distance inward of the boundary of a region that is known to be said repeated pattern region; and

20 an inspection region setting step for setting said inspection region by containing therein said reference position when a comparison result from said image comparing step shows a value not greater than a prescribed threshold value.

25 2. A pattern comparison inspection method which captures an image of an inspection target pattern having a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch, and which detects a defect in said inspection target pattern by comparing image signals taken from positions located a first integral multiple of said repeat pitch away from each other within an inspection region defined inside said repeated pattern region, said method comprising:

a reference position selecting step for selecting a reference position which is judged whether it should be contained in said inspection region, by incrementally shifting said reference position by a

prescribed distance within said inspection target pattern;

5 an image comparing step for comparing an image signal at said reference position with an image signal at a position located a second integral multiple of said repeat pitch away from said reference position; and

10 an inspection region setting step for setting said reference position as the boundary of said inspection region when a comparison result from said image comparing step performed by incrementally shifting said reference position by said prescribed distance shows a change greater than a prescribed threshold value.

15 3. A pattern comparison inspection method which captures an image of an inspection target pattern having a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch, and which detects a defect in said inspection target pattern by comparing image signals taken from positions located a 20 first integral multiple of said repeat pitch away from each other within an inspection region defined inside said repeated pattern region, said method comprising:

25 a reference position selecting step for selecting a reference position which is judged whether it should be contained in said inspection region, by incrementally shifting said reference position by a prescribed distance within said inspection target pattern;

30 an image comparing step for comparing an image signal at said reference position with an image signal at a position located a second integral multiple of said repeat pitch away from said reference position; and

35 an inspection region setting step for setting said reference position as the boundary of said inspection region when a comparison result from said image comparing step performed by incrementally shifting

said reference position by said prescribed distance shows a maximum change.

4. A pattern comparison inspection method as claimed in any one of claims 1 to 3, wherein said image comparing step compares said image signal at said reference position with an image signal at a position located farther inside said repeated pattern region than said reference position is.

5 10 5. A pattern comparison inspection method as claimed in any one of claims 1 to 3, wherein a position located a prescribed distance inward of the boundary of said repeated pattern region is selected as said reference position, and

15 15 said inspection region is set by repeatedly performing said image comparing step while incrementally moving said reference position outwardly toward the boundary of said repeated pattern region.

20 6. (Amended) A pattern comparison inspection method as claimed in claim 2 or 3, further comprising a tentative region setting step for setting a tentative region a prescribed distance inward of the boundary of said repeated pattern region, and wherein

25 25 said image comparing step compares said image signal at said reference position with an image signal at a position located inside said tentative region.

30 7. (Amended) A pattern comparison inspection method as claimed in any one of claims 1 to 3, further comprising a tentative region setting step for setting a tentative region a prescribed distance inward of the boundary of said repeated pattern region, and wherein

35 a position located inside said tentative region is selected as said reference position, and

35 said inspection region is set by repeatedly performing said image comparing step while incrementally shifting said reference position outwardly toward the boundary of said repeated pattern region.

8. A pattern comparison inspection method as claimed in any one of claims 1 to 3, wherein a position located a prescribed distance outward of the boundary of said repeated pattern region is selected as said reference position, and

5 said inspection region is set by repeatedly performing said image comparing step while incrementally shifting said reference position inwardly toward the boundary of said repeated pattern region.

10 9. (Amended) A pattern comparison inspection apparatus which comprises an imaging portion which captures an image of an inspection target pattern having a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch, a 15 storing portion which stores said captured image of said inspection target pattern, a pattern comparing portion which compares, on said stored image, image signals taken from positions located a first integral multiple of said repeat pitch away from each other within an inspection 20 region defined inside said repeated pattern region, and a defect detecting portion which detects a defect in said inspection target pattern based on a result of said comparison, said apparatus comprising:

25 a reference position selecting portion which selects from among positions on said inspection target pattern a reference position which is judged whether it should be contained in said inspection region;

30 an image comparing portion which compares an image signal at said reference position with an image signal at a position located a second integral multiple of said repeat pitch away from said reference position and a prescribed distance inward of the boundary of a region that is known to be said repeated pattern region; and

35 an inspection region setting portion which sets said inspection region by containing therein said reference position when a comparison result from said

image comparing portion shows a value not greater than a prescribed threshold value.

10. (Amended) A pattern comparison inspection apparatus which comprises an imaging portion which captures an image of an inspection target pattern having a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch, a storing portion which stores said captured image of said inspection target pattern, a pattern comparing portion which compares, on said stored image, image signals taken from positions located a first integral multiple of said repeat pitch away from each other within an inspection region defined inside said repeated pattern region, and a defect detecting portion which detects a defect in said 15 inspection target pattern based on a result of said comparison, said apparatus comprising:

a reference position selecting portion which selects a reference position which is judged whether it should be contained in said inspection region, 20 by incrementally shifting said reference position by a prescribed distance within said inspection target pattern;

an image comparing portion which compares an image signal at said reference position with an image 25 signal at a position located a second integral multiple of said repeat pitch away from said reference position; and

an inspection region setting portion which sets said reference position as the boundary of said 30 inspection region when a comparison result, obtained from said image comparing portion as a result of incrementally shifting said reference position by said prescribed distance, shows a change greater than a prescribed threshold value.

35 11. (Amended) A pattern comparison inspection apparatus which comprises an imaging portion which captures an image of an inspection target pattern having

a repeated pattern region with repeated patterns formed in a repeated fashion at a prescribed repeat pitch, a storing portion which stores said captured image of said inspection target pattern, a pattern comparing portion which compares, on said stored image, image signals taken from positions located a first integral multiple of said repeat pitch away from each other within an inspection region defined inside said repeated pattern region, and a defect detecting portion which detects a defect in said 10 inspection target pattern based on a result of said comparison, said apparatus comprising:

15 a reference position selecting portion which selects a reference position which is judged whether it should be contained in said inspection region, by incrementally shifting said reference position by a prescribed distance within said inspection target pattern;

20 an image comparing portion which compares an image signal at said reference position with an image signal at a position located a second integral multiple of said repeat pitch away from said reference position; and

25 an inspection region setting portion which sets said reference position as the boundary of said inspection region when a comparison result, obtained from said image comparing portion as a result of incrementally shifting said reference position by said prescribed distance, shows a maximum change.

30 12. (Amended) A pattern comparison inspection apparatus as claimed in any one of claims 9 to 11, wherein said image comparing portion compares said image signal at said reference position with an image signal at a position located farther inside said repeated pattern region than said reference position is.

35 13. (Amended) A pattern comparison inspection apparatus as claimed in any one of claims 9 to 11, wherein a position located a prescribed distance inward

of the boundary of said repeated pattern region is selected as said reference position, and

5 said inspection region is set by repeatedly performing said comparison by said image comparing portion while incrementally moving said reference position outwardly toward the boundary of said repeated pattern region.

10 14. (Amended) A pattern comparison inspection apparatus as claimed in claim 10 or 11, further comprising a tentative region setting portion which sets a tentative region a prescribed distance inward of the boundary of said repeated pattern region, and wherein

15 said image comparing portion compares said image signal at said reference position with an image signal at a position located inside said tentative region.

20 15. (Amended) A pattern comparison inspection apparatus as claimed in any one of claims 9 to 11, further comprising a tentative region setting portion which sets a tentative region a prescribed distance inward of the boundary of said repeated pattern region, and wherein

25 a position located inside said tentative region is selected as said reference position, and

 said inspection region is set by repeatedly performing said comparison by said image comparing portion while incrementally shifting said reference position outwardly toward the boundary of said repeated pattern region.

30 16. (Amended) A pattern comparison inspection apparatus as claimed in any one of claims 9 to 11, wherein a position located a prescribed distance outward of the boundary of said repeated pattern region is selected as said reference position, and

35 said inspection region is set by repeatedly performing said comparison by said image comparing portion while incrementally shifting said

reference position inwardly toward the boundary of said repeated pattern region.

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